



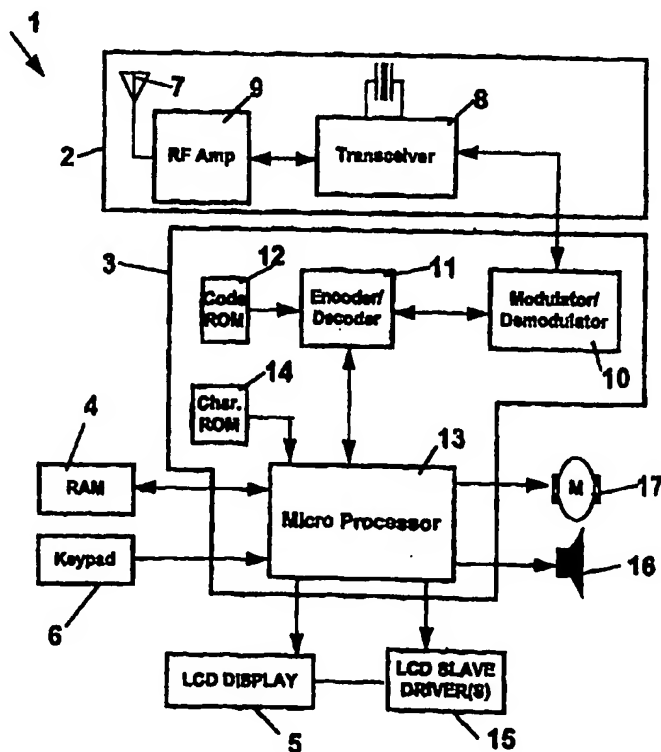
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(54) Title: SELECTIVE CALL RECEIVER AND SYSTEM

(57) Abstract

A two way selective call receiver (1) comprising a combined transmitter and receiver circuit (2), for receiving a coded transmitted message, and a processor (3) for determining if the message is a preview message of a longer message. The selective call receiver (1) also comprises a memory (4), display (5) and keypad (6). Upon receipt of a signal from the keypad (6), the processor (3) provides an encoded request signal to transmitter and receiver circuit. The request signal is used to request, from an information system, the longer message associated with the preview message.



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SELECTIVE CALL RECEIVER AND SYSTEM

5 FIELD OF THE INVENTION

This invention relates to a two way selective call receiver and system. The invention is particularly useful for supplying preview messages of longer messages to a selective call receiver which then may request a longer
10 version of the preview message.

BACKGROUND ART

15 Paged information transmitted from a central information station to a selective call receiver, often called a pager, has become a well known and used form of communication. Such paged information has been transmitted using a number of well known paging coding
20 schemes, some of which have been developed to assist in reducing transmission times. Unfortunately due to the success of selective call receiver systems, communication channels may not always be available and the cost of lengthy paged messages can be relatively expensive.

25 One approach developed to reduce the cost and communication time of paged messages is to use "canned messages" as described in U.S. patent 4,263,480. Such canned messages use pre-programmed selective call
30 receivers each having a memory with stored messages. The stored messages are selectively retrievable by a received message code. Unfortunately canned messages are only useful when standard repetitive paged messages are sent and they are not appropriate for lengthy non-repetitive
35 paged messages.

SUMMARY OF THE INVENTION

It is an aim of the invention to overcome or
5 alleviate at least one of the problems associated with
prior art selective call receivers and selective call
receivers systems.

According to one aspect of the invention there is
10 provided a selective call receiver comprising:

receiver means for receiving a coded transmitted
message;

15 processing means, in communication with said receiver
means, for decoding said coded transmitted message to
determine if said message is a preview message of a longer
message;

20 storage means, in communication with said processing
means, for storing at least part of said message;

user signalling means, in communication with said
processing means, for displaying at least part of said
25 message and information identifying said message as a said
preview message; and

user input means, in communication with said
processing means, for providing to at least one signal to
30 said processing means, wherein upon receipt of said signal
said processing means is adapted to provide an encoded
request signal to an associated transmitter means for
requesting said longer message associated with said
preview message.

35

Suitably, said receiver means and said transmitter
means may comprise a common antenna.

Preferably, said processing means may include a decoder for decoding said coded transmitted message.

5 Suitably, said processing means may include an encoder for encoding said request signal.

Preferably, said processing means may also include a modulator and a demodulator.

10

Suitably, said processing means may also include a microprocessor.

15 Preferably, said storage means may be a Random Access Memory.

Suitably, the user signalling means may comprise a visual display. The visual display may be a liquid crystal display. The signalling means may include a light emitting diode or an audio signal generator.

20

Preferably, said user input means may be a keypad. In an alternative form the user input means may be a touch screen integral with said visual display.

25

According to another aspect for this invention there is provided a selective call receiver system comprising:

one or more antennas;

30

a plurality of two way selective call receivers, selectively in communication with said antennas, said receivers being adapted to receive a coded paged message from at least one of said antennas and determine if said message is a preview message of a longer message, wherein if said message is a preview message said receivers are adapted to transmit to at least one of said antennas an

35

encoded request signal associated with said preview message; and

5 at least one information centre, in communication with said one or more antennas for providing said coded preview message thereto, said message including information identifying whether or not said message is a said preview message,

10 wherein said information centre is adapted to process said encoded request signal received by one of said antennas,

and wherein in response thereto said information centre provides said longer message to said one or more antennas.

15

Preferably, the selective call receiver system is further characterized by said selective call receivers comprising:

20 receiver means for receiving said coded paged message;

processing means, in communication with said receiver means, for decoding said coded paged message to determine if said message is a said preview message;

25 storage means, in communication with said processing means, for storing at least part of said message;

30 user signalling means, in communication with said processing means, for displaying at least part of said message and information identifying said message as a said preview message; and

35 user input means, in communication with said processing means, for providing at least one signal to said processing means, wherein upon receipt of said signal said processing means is adapted to provide said encoded request signal to an associated transmitter means for

requesting said longer message associated with said preview message.

Suitably, said information centre comprises
5 processing means for selecting said preview message from said longer message.

BRIEF DESCRIPTION OF THE DRAWINGS

10

In order that the invention may be readily understood and put into practical affect, reference will now be made to a preferred embodiment as illustrated with reference to the accompanying drawings in which:

15

FIG. 1 is a block diagram illustrating an embodiment of a selective call receiver in accordance with the invention;

20

FIG. 2 is a diagram a selective call receiver system including the selective call receiver of FIG. 1.

FIG. 3 is flow diagram of the operation of FIGs. 1 and 2 when in use; and

25

FIG. 4 is a continuation of the flow diagram of FIG.1

30

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT OF THE INVENTION

With reference to Fig. 1 there is illustrated a two way selective call receiver 1 commonly known as a two way pager. Selective call receiver 1 comprises a receiver
35 means 2 coupled to be in communication with a processing means 3. A Random Access Memory 4, Liquid crystal display

5 and keypad 6 are also coupled to be in communication with processing means 3.

The receiver means 2 is a combined receiver and transmitter having a common antenna 7. Receiver means 2 also includes a transceiver 8 coupled to antenna 7 via a radio frequency amplifier 9.

The processing means 3 includes a combined modulator/demodulator 10 coupled to both transceiver 8 and an encoder/decoder 11. Encoder/decoder has an associated Read Only Memory 12 storing data for encoding and decoding received messages.

The processing means 3 also includes a micro-processor 13 coupled to encoder/decoder 11 and an associated character Read Only Memory 14. Micro-processor 13 is also coupled to Random Access Memory 4, keypad 6 and liquid crystal display 5. Liquid crystal display 5 has an associated slave driver 15 controllable by micro-processor 13 which has outputs coupled to a speaker 16 and vibrating motor 17.

The character Read only memory 14 stores data for converting decoded/encoded binary messages into alphanumeric data. In this embodiment the character Read only memory 14 also stores operating code for micro-processor 13.

Referring to Fig. 2, there is illustrated a selective call receiver system 20 comprising an information centre 21 in communication with a plurality of antennas 22 for communicating with remote selective call receiver 1 of Fig. 1.

35

In use, and as illustrated with reference to FIGs. 3 and 4, system 20 operates by a message being sent at step

30 to information centre 21. This message is sent, for example, by a conventional trunk call. The message is then processed at step 31 by information centre 21 and coded into an appropriate data protocol.

5

During coding the character length of the message is checked at step 32. If the length is greater than thirty characters, including spaces, then step 33 sets a message type bit associated with the data protocol to logic 1. At
10 step 34 only the first thirty characters of the message are selected to be transmitted as a preview message of a longer message.

At step 37 the longer message and an identifier
15 address code are stored in memory, for example, at information centre 21. If at step 32 the character length of the message is found to be less than thirty characters, then the message type bit is set to logic 0. This identifies the message as a non-preview message and at
20 step 36 the message and an identifier address code are then stored in memory.

The above processing steps 31 to 37 are performed at information centre 21. At step 38, the preview message
25 (or non-preview message), including the message type bit and identifier address code, are then modulated at information centre 21 and then transmitted by antennas 22 to selective call receiver 1.

30 At step 39 antenna 7 receives the message including the message type bit and identifier address code which is amplified by amplifier 9, filtered by transceiver 8 and demodulated by demodulator 10.

35 At step 40, decoder 11 in combination with associated with Read Only Memory 12 decodes the message protocol. The decoded message including the message type bit and

identifier address code are stored in Random Access Memory 4 at step 41. The message type bit is then checked at step 42. If the message type bit set to logic 1 then it is determined that the message is a preview message. At
5 step 43 the liquid crystal display 5 then displays the preview message along with an icon identifying the message as a preview message of a longer message.

Alternatively, if at step 42 if the message type bit
10 is found to be a logic 0 then it is determined that the message is a non-preview message. Accordingly, at step 44 the non-preview message is displayed by the liquid crystal display 5. Further, speaker 16 and motor 17, if switched to active mode, signal at either steps 43 or 44 that a
15 message has been received.

If the message is identified on the liquid crystal display as a preview message the user may wish to view the longer message. Therefore at step 45 an appropriate key
20 is activated on keypad 6 to generate a longer message request signal. The longer message request signal and the identifier address code are sent to decoder 11. The longer message request signal and address code are coded into a pager request code at step 46 which is modulated by
25 modulator 10 filtered by transceiver 8 amplified by amplifier 9. The pager request code is then transmitted by transmitter 7 at step 47 and received by one of antennas 22 at step 48.

30 The pager request code is then sent to information centre 21 where the request code is amplified, filtered, demodulated, decoded. The identifier address code of the longer message is then used to access the stored longer message. The longer message is then transmitted, by one
35 of antennas 22, to selective call receiver 1 at step 49. The longer message has its associated message type bit set

to 0 and therefore selective call receiver 1 treats the message as a longer message.

5 The present invention advantageously reduces or at least alleviates at least one of the problems associated with transmitting relatively long messages to selective call receivers. In this regard pager users can select whether or not they wish to view longer messages associated with a preview message. This can result in more
10 efficient usage of communication channels, wherein the selective call receiver user has the option of requesting specific long paged messages upon receipt of a preview message.

15 The present invention may advantageously reduce the running costs and overheads associated with transmitted pager traffic. Further, the present invention allows for economical common preview messages being sent to numerous pagers, wherein only users interested in the preview
20 message can request the full longer message. Such preview messages may include weather forecasts, news flashes or stock market data.

25 Although the invention has been described with reference to a preferred embodiment it is to be understood that the invention is not restricted to the particular embodiment described herein.

WE CLAIM:

1. A selective call receiver comprising:

5 receiver means for receiving a coded transmitted message;

processing means, in communication with said receiver means, for decoding said coded transmitted message to
10 determine if said message is a preview message of a longer message;

storage means, in communication with said processing means, for storing at least part of said message;

15 user signalling means, in communication with said processing means, for displaying at least part of said message and information identifying said message as a said preview message; and

20 user input means, in communication with said processing means, for providing to at least one signal to said processing means, wherein upon receipt of said signal said processing means is adapted to provide an encoded
25 request signal to an associated transmitter means for requesting said longer message associated with said preview message.

2. A selective call receiver as claimed in claim 1,
30 wherein said user signalling means comprises a visual display.

3. A selective call receiver as claimed in claim 1,
wherein said user input means is a keypad.

4. A selective call receiver as claimed in claim 2, wherein the user input means is a touch screen integral with said visual display.

5 5. A selective call receiver system comprising:

one or more antennas;

a plurality of two way selective call receivers,
10 selectively in communication with said antennas, said receivers being adapted to receive a coded paged message from at least one of said antennas and determine if said message is a preview message of a longer message, wherein if said message is a preview message said receivers are
15 adapted to transmit to at least one of said antennas an encoded request signal associated with said preview message; and

at least one information centre, in communication
20 with said one or more antennas for providing said coded preview message thereto, said message including information identifying whether or not said message is a said preview message,

wherein said information centre is adapted to process
25 said encoded request signal received by one of said antennas,

and wherein in response thereto said information centre provides said longer message to said one or more antennas.

30

6. A selective call receiver system as claimed in claim 5, wherein said selective call receivers comprise:

receiver means for receiving said coded paged
35 message;

processing means, in communication with said receiver means, for decoding said coded paged message to determine if said message is a said preview message;

storage means, in communication with said
5 processing means, for storing at least part of said message;

user signalling means, in communication with said processing means, for displaying at least part of said message and information identifying said message as been a
10 said preview message; and

user input means, in communication with said processing means, for providing at least one signal to said processing means, wherein upon receipt of said signal said processing means is adapted to provide said encoded
15 request signal to an associated transmitter means for requesting said longer message associated with said preview message.

7. A selective call receiver system as claimed in
20 claim 5, wherein said information centre comprises processing means for selecting said preview message from said longer message.

8. A selective call receiver system as claimed in
25 any one of claim 6, wherein said information centre comprises processing means for selecting said preview message from said longer message.

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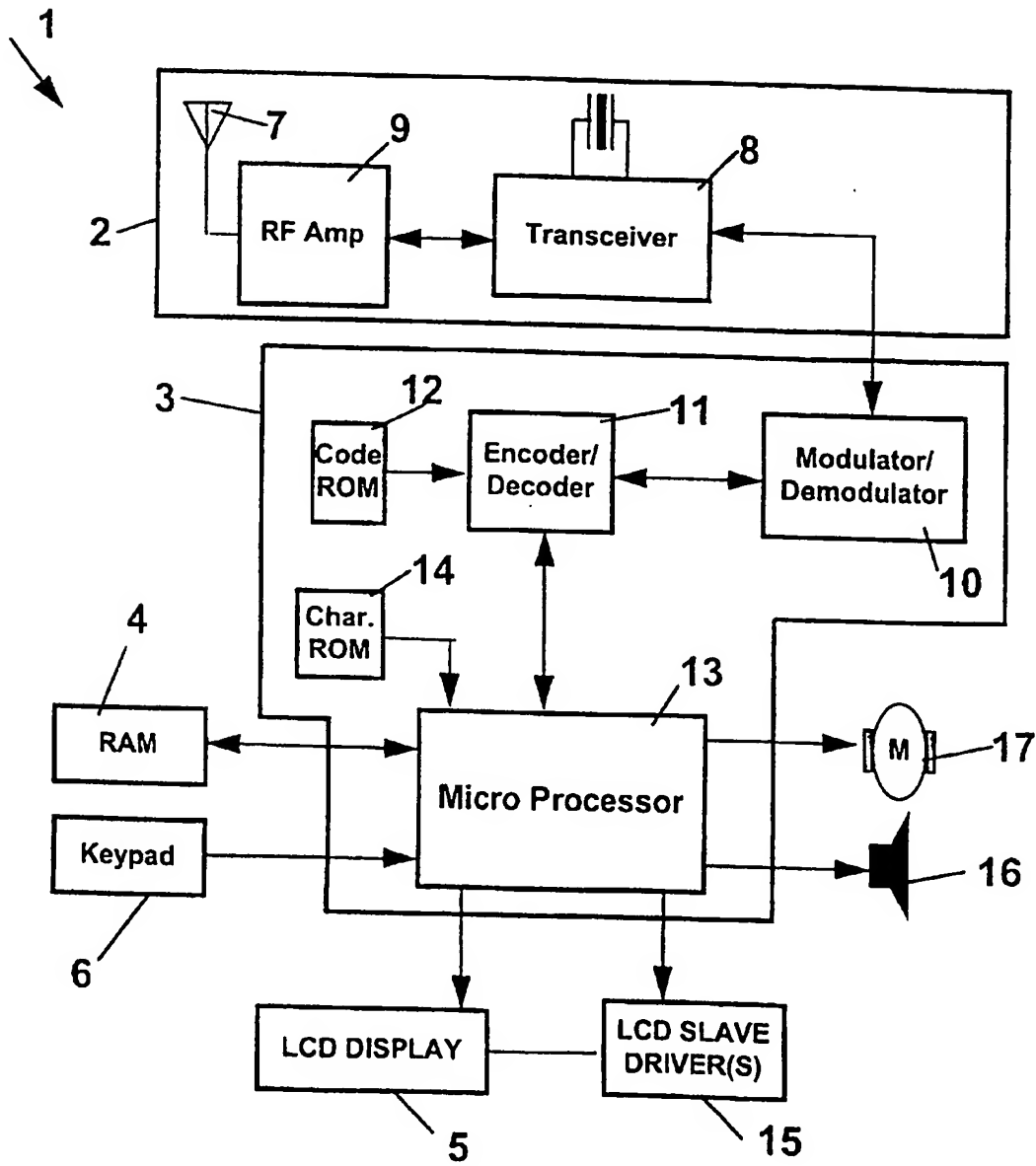


FIG. 1

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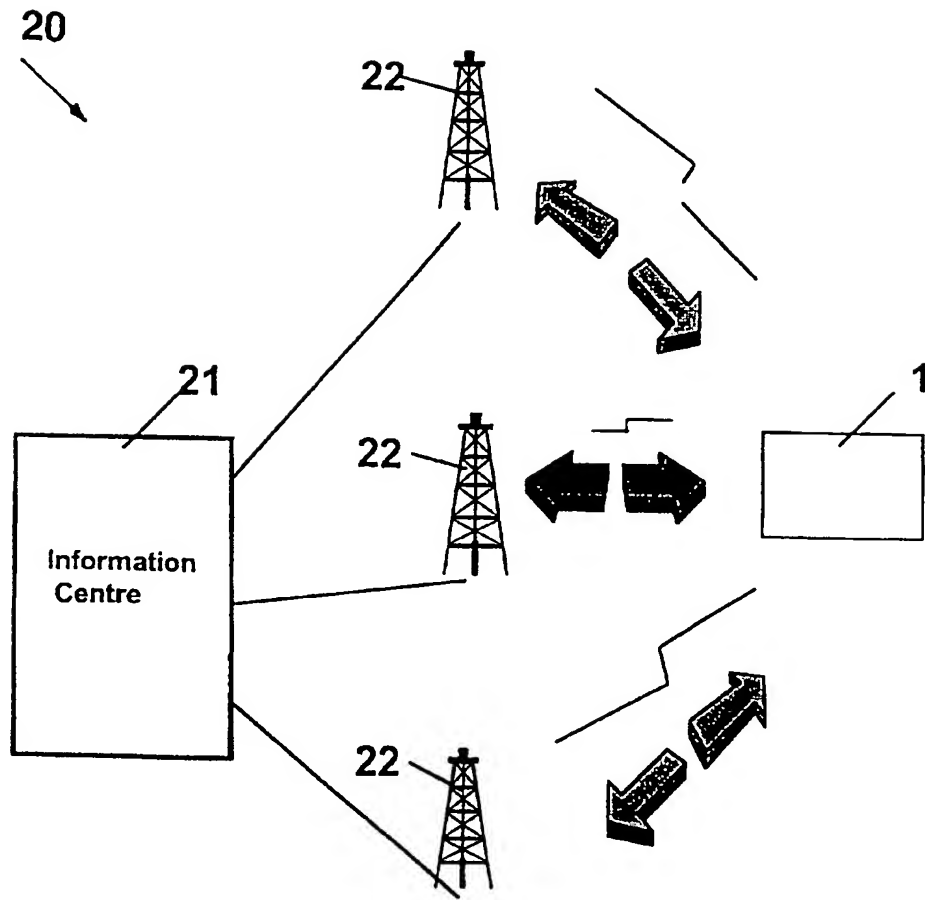
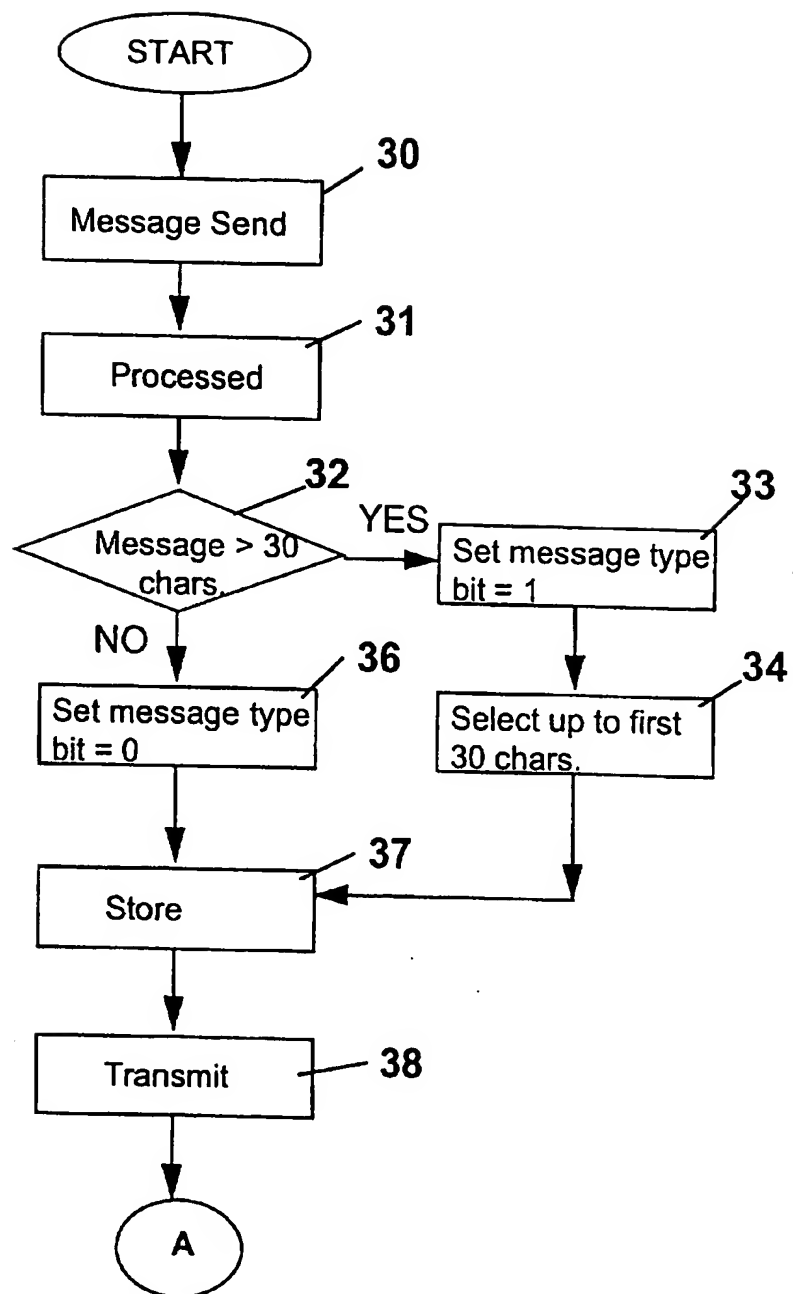


FIG. 2

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**FIG. 3**

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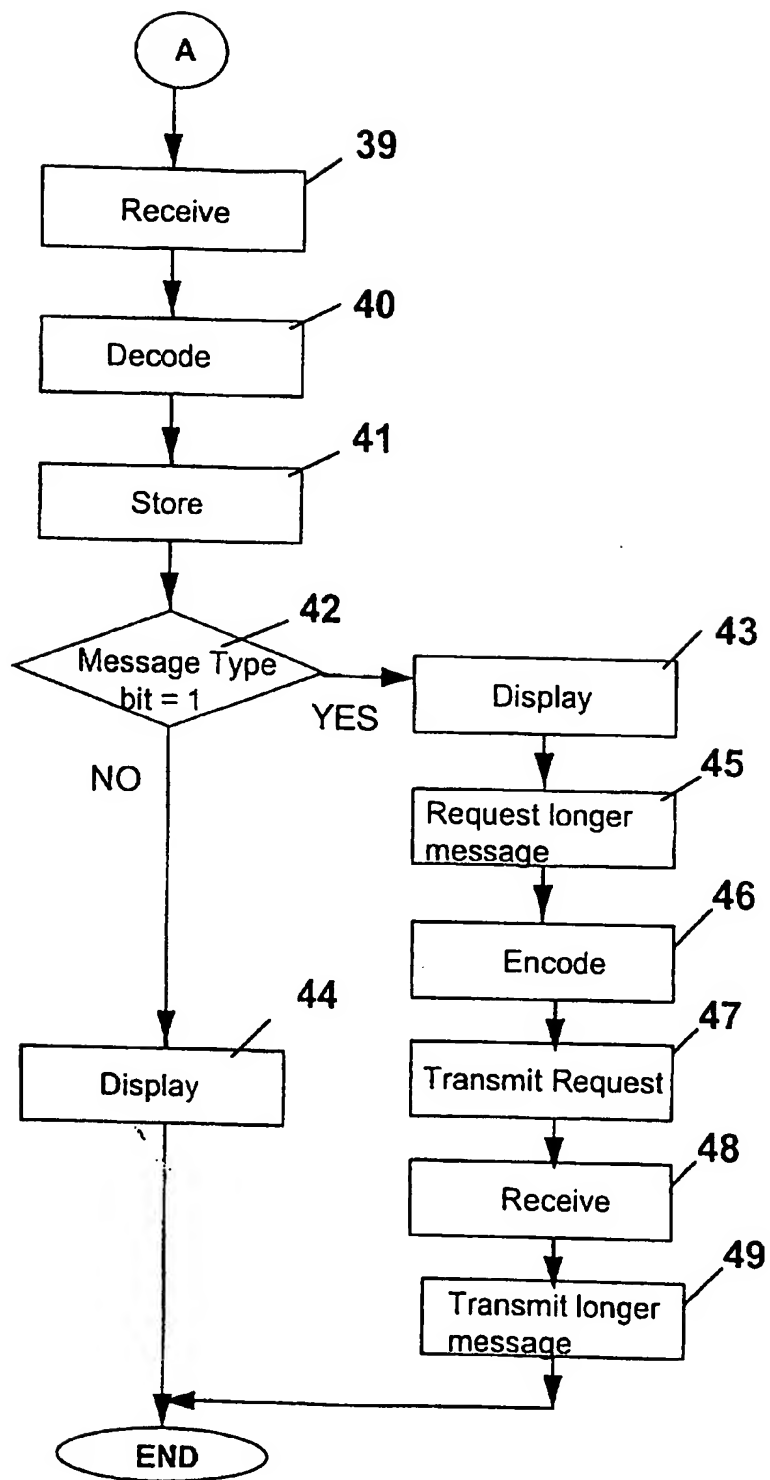



FIG. 4

INTERNATIONAL SEARCH REPORT

International Application No.
PCT/SG 97/00006

A. CLASSIFICATION OF SUBJECT MATTER		
Int Cl ⁶ : H04B 7/26, H04Q 7/18, 7/14.		
According to International Patent Classification (IPC) or to both national classification and IPC		
B. FIELDS SEARCHED		
Minimum documentation searched (classification system followed by classification symbols) IPC H04B, H04Q, Go8B		
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched		
Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) WPAT:		
C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 94/13070 A1 (MOTOROLA, INC) 9 June 1994 whole document especially figures 1 and 4.	1-8
<input type="checkbox"/> Further documents are listed in the continuation of Box C <input checked="" type="checkbox"/> See patent family annex		
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Date of the actual completion of the international search 5 June 1997		Date of mailing of the international search report 13 JUN 1997
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INTERNATIONAL SEARCH REPORT
Information on patent family members

International Application No.
PCT/SG 97/00006

This Annex lists the known "A" publication level patent family members relating to the patent documents cited in the above-mentioned international search report. The Australian Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

Patent Document Cited in Search Report				Patent Family Member			
WO	9413070	AU	56177/94	BG	99745	CN	1095881
		CZ	9501336	EP	671084	FI	952577
		HU	9501551	HU	73106	NO	952099
		NZ	258484	PL	309247	US	5392452